CLAIMS

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- 1. A molecule which contains a partially occluded and/or multimeric presentation of a peptide which is recognised by an HIV-1 neutralising antibody capable of neutralising diverse clinical isolates of HIV-1.
- 2. A molecule as claimed in claim 1 wherein the HIV-1 neutralising antibody is any of 2F5, IgG₁-b12, 4E10 and Z13.
- 3. A molecule as claimed in claim 1 or claim 2 wherein the peptide contained within the molecule is a linear epitope of the HIV-1 neutralising antibody.
 - 4. A molecule as claimed in any of claims 1 to 3 which is a homomultimer of a polypeptide chain which polypeptide chain contains a spacer portion, a linear epitope recognised by the HIV-1 neutralising antibody, a multimerisation portion and, optionally, a carrier portion wherein the polypeptide chain has a molecular weight no more than 30 kDa.
- 5. A molecule as claimed in any of claims 1 to 3 comprising a portion which is a linear epitope recognised by the HIV-1 neutralising antibody and an occluding portion.
- 6. A molecule which is a polypeptide of one or more polypeptide chains.
 - 7. A molecule as claimed in any of the preceding claims which is a homomultimer of a polypeptide chain which contains a linear epitope which recognises the HIV-1 neutralising antibody and an occluding portion

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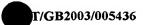
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wherein the linear epitope is partially occluded by the occluding portion when the polypeptide chain is present in the multimer.

- 8. A molecule as claimed in any of claims 1 to 7 comprising a first polypeptide chain which contains a linear epitope of the HIV-1 neutralising antibody and a second polypeptide chain which partially occludes the linear epitope on the first polypeptide chain.
- 9. A molecule as claimed in claim 7 wherein the polypeptide chain contains an occluding portion, the linear epitope, a multimerisation portion and, optionally, a carrier portion.
 - 10. A molecule as claimed in claim 8 wherein the first polypeptide chain contains (1) the linear epitope, (2) a multimerisation portion and, optionally, (3) a carrier portion, and the second polypeptide chain comprises an occluding portion, a multimerisation portion and, optionally, a carrier portion.
 - 11. A trimeric presentation of a peptide as defined in claim 1.
 - 12. A multimeric presentation of a peptide as defined in claim 1 or claim 2 which is stabilised by inter-chain disulphide bridging of the reactive peptides or by other chemical means to generate a three dimensional structure similar to that created by the disulphide-bridged peptides.
 - 13. A polynucleotide encoding a polypeptide chain as claimed in any of claims 6 to 12.



- 14. A molecule as claimed in any of claims 1 to 10, or a trimeric or multimeric presentation as claimed in claims 11 or 12, or a polynucleotide as claimed in claim 13 for use in medicine.
- 5 15. A pharmaceutical composition comprising a molecule as claimed in any of claims 1 to 10, or a trimeric or multimeric presentation as claimed in claims 11 or 12, or a polynucleotide as claimed in claim 13 and a pharmaceutically acceptable carrier.
- 16. The use of a molecule as claimed in any of claims 1 to 10, or a trimeric or multimeric presentation as claimed in claims 11 or 12, or a polynucleotide as claimed in claim 13 to induce neutralising antibodies in an immunised host organism.
- 17. A method of obtaining an HIV-1 neutralising antibody, the method comprising administering a molecule as claimed in any of claims 1 to 10, or a trimeric or multimeric presentation as claimed in claims 11 or 12, or a polynucleotide as claimed in claim 13 to an animal, allowing the animal to produce antibodies, and recovering antibodies directly or indirectly from the animal.
 - 18. A method as claimed in claim 17 wherein the antibodies are monoclonal antibodies.
- 19. A method of obtaining an HIV-1 neutralising antibody, the method comprising selecting an antibody from an antibody display library in vitro which binds to a molecule as claimed in any of claims 1 to 10, or a trimeric or multimeric presentation as claimed in claims 11 or 12, and synthesising an antibody containing the binding determinants of the so selected antibody.

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- 20. An antibody obtained in accordance with any of claims 16 to 19 capable of neutralising diverse clinical isolates of HIV-1.
- 21. An antibody as claimed in claim 20 for use in medicine.
- 22. A pharmaceutical composition comprising an antibody as claimed in Claim 20 and a pharmaceutically acceptable carrier.
- 23. A vaccine for the prevention or treatment of HIV-1 infection which comprises a molecule as claimed in any of claims 1 to 10, or a trimeric or multimeric presentation as claimed in claims 11 or 12, or a polynucleotide as claimed in claim 13.
- 24. Use of a molecule as claimed in any of claims 1 to 10, or a trimeric or multimeric presentation as claimed in claims 11 or 12, or a polynucleotide as claimed in claim 13, or an antibody as claimed in claim 20 in the manufacture of a medicament for treating or preventing HIV-1 infection.
- 25. A method of treating or preventing HIV-1 infection in an individual the method comprising administering to the individual a molecule as claimed in any of claims 1 to 10, or a trimeric or multimeric presentation as claimed in claims 11 or 12, or a polynucleotide as claimed in claim 13, or an antibody as claimed in claim 20.
 - 26. A method of detecting HIV-1 neutralising antibodies in a sample the method comprising contacting the sample with a molecule as claimed in any of claims 1 to 10 or a trimeric or multimeric presentation as claimed in claims 11 or 12 and determining whether any antibodies present in the sample bind thereto.

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- 27. A method of identifying a molecule which may be useful in raising a neutralising response to HIV-1 the method comprising screening a peptide display library wherein the displayed peptides are from 15 to 40 amino acids in length with an HIV-1 neutralising antibody and selecting those displayed peptides which bind to the antibody.
- 28. A method according to claim 27 further comprising determining whether the displayed peptides are able to bind to an antibody raised against a linear epitope recognised by the HIV-1 neutralising antibody and selecting those displayed peptides that are not able to so bind.
- 29. A molecule obtained by the method of claim 27 or 28.

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